REMARKS

In the Office Action dated September 13, 2007, the Examiner rejects claims 17-26 under 35 U.S.C. § 102(b) as allegedly being anticipated by U.S. Patent No. 5,715,367 to Gillick et al. (hereafter "GILLICK"); and rejects claims 7-16 under 35 U.S.C. § 103(a) as allegedly being unpatentable over GILLICK in view of U.S. Patent No. 6,711,541 to Kuhn et al. (hereinafter "KUHN"). Applicants respectfully traverse these rejections.

By way of present amendment, Applicants cancel claims 1-7, 10, 14, 18, 20, and 22 without prejudice or disclaimer and amend claims 8, 11, 13, 15, 17, 19, 24 and 26 to improve form. No new matter has been added by way of the present amendment. Claims 8-9, 11-13, 15-17, 19, 21, and 23-26 are pending.

Pending claims 17, 19, 21, and 23-26 stand rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by GILLICK, and pending claims 8-9, 11-13, and 15-16 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over GILLICK in view of KUHN.

Applicants have amended independent claims 17 and 26 to include, among other things, features similar to features previously presented in claim 7 (now cancelled). The Examiner rejects claim 7 under 35 U.S.C. § 103(a) based on GILLICK and KUHN. Thus, Applicants will address pending claims 8-9, 11-13, 15-17, 19, 21, and 23-26 as rejected under 35 U.S.C. § 103(a) based on GILLICK and KUHN. Applicants respectfully traverse this rejection.

Amended independent claim 17 is directed to a speech recognition system that includes a clustering tree configured to classify a series of sounds into predefined clusters based on one of the sounds and on a predetermined number of neighboring sounds that surround the one of the sounds, where the clustering tree comprises a first level with a first hierarchical arrangement of decision nodes in which the decision nodes of the first hierarchical arrangement are associated with a first group of questions relating to the series of sounds, a second level with a second hierarchical arrangement of decision nodes in which the decision nodes of the second hierarchical arrangement are associated with a second group of questions relating to the series of sounds, the second group of

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questions discriminating at a finer level of granularity within the series of sounds than the first

group of questions, a third level with a third hierarchical arrangement of decision nodes in which the

decision nodes of the third hierarchical arrangement are associated with a third group of questions

discriminating at a finer level of granularity within the series of sounds than the second group of

questions, and a plurality of speech recognition models trained to recognize speech based on the

predefined clusters, the plurality of speech recognition models comprising a first model associated

with the first level and including a triphone non-crossword speech recognition model, a second

model associated with the second level and including a quinphone non-crossword speech

recognition model, and a third model associated with the third level and including a quinphone

crossword speech recognition model. GILLICK does not disclose or suggest this combination of

features.

For example, GILLICK does not disclose or suggest that a plurality of speech recognition

models comprise a first model associated with the first level and including a triphone non-crossword

speech recognition model, a second model associated with the second level and including a

quinphone non-crossword speech recognition model, and a third model associated with the third

level and including a quinphone crossword speech recognition model, as recited in amended claim

17. These features are similar to features previously recited in claim 20. With respect to that claim,

The Examiner relies on col. 2, lines 37-67 of GILLICK for allegedly disclosing the above features

(Office Action, .p. 3). Applicants respectfully disagree with the Examiner's interpretation of

GILLICK.

Col. 2, lines 37-67 of GILLICK disclose that a phoneme-in-context (PIC) may represent a

sequence of sounds of a phoneme in a triphone context. Thus, context of a phoneme is defined by

the phoneme directly before it and the phoneme directly after it. This section of GILLICK does not

disclose or suggest quinphones. This section of GILLICK also does not disclose or suggest

crossword speech recognition models or non-crossword speech recognition models. Therefore, this

section of GILLICK cannot disclose or suggest that a plurality of speech recognition models

comprise a first model associated with the first level and including a triphone non-crossword speech

recognition model, a second model associated with the second level and including a quinphone non-

crossword speech recognition model, and a third model associated with the third level and including a quinphone crossword speech recognition model, as recited in amended claim 17.

Furthermore, GILLICK does not disclose or suggest that a clustering tree comprises a first level with a first hierarchical arrangement of decision nodes in which the decision nodes of the first hierarchical arrangement are associated with a first group of questions relating to the series of sounds, a second level with a second hierarchical arrangement of decision nodes in which the decision nodes of the second hierarchical arrangement are associated with a second group of questions relating to the series of sounds, the second group of questions discriminating at a finer level of granularity within the series of sounds than the first group of questions, and a third level with a third hierarchical arrangement of decision nodes in which the decision nodes of the third hierarchical arrangement are associated with a third group of questions discriminating at a finer level of granularity within the series of sounds than the second group of questions, as recited in amended claim 17.

The above feature is similar to a feature recited in previously presented claim 7 (now cancelled). The Examiner admits that GILLICK does not disclose this feature (Office Action, p. 4). The Examiner relies on the abstract of KUHN for allegedly disclosing this feature (Office Action, p. 4). Applicants disagree with the Examiner's interpretation of KUHN.

The abstract of KUHN discloses:

> A set of models is developed to represent sound units and these models are then used with the incorrect sound units to determine which generate high likelihood scores. The models generating high likelihood scores for the incorrect sound units represent those that are more likely to be confused. The resulting confusability data may then be used in generating more discriminative speech models and in subsequent pruning of the acoustic decision tree. The confusability data may also be used to develop confusability predictors used for rejection during search and in developing continuous speech recognition models that are optimized to minimize confusability.

This section of KUHN discloses a set of models that are used with incorrect sound units to determine which incorrect sound units generate high likelihood scores. The resulting confusability data is used to generate more descriptive speech models to minimize confusion between different

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sound units. This section of KUHN does not disclose or suggest, for example, a first level of a clustering tree, a second level of the clustering tree, and a third level of the clustering tree. Instead, KUHN discloses assessing which other phonemes are most confusable with a given phoneme. KUHN does not correlate this to different levels of a clustering tree. Therefore, KUHN cannot disclose or suggest that a clustering tree that comprises a first level with a first hierarchical arrangement of decision nodes in which the decision nodes of the first hierarchical arrangement are associated with a first group of questions relating to the series of sounds, a second level with a second hierarchical arrangement of decision nodes in which the decision nodes of the second hierarchical arrangement are associated with a second group of questions relating to the series of sounds, the second group of questions discriminating at a finer level of granularity within the series of sounds than the first group of questions, and a third level with a third hierarchical arrangement of decision nodes in which the decision nodes of the third hierarchical arrangement are associated with a third group of questions discriminating at a finer level of granularity within the series of sounds than the second group of questions, as recited in amended claim 17.

Furthermore, KUNH does not disclose or suggest discriminating at a finer level of granularity. Instead, KUHN discloses single phonemes, and assessing which other phonemes are most confusable with a given phoneme (see, for example, Fig. 5b of KUHN). Therefore, the decision nodes in the clustering tree disclosed by KUHN are all at the same level of granularity. Thus, KUHN cannot disclose or suggest that a clustering tree comprises a first level with a first hierarchical arrangement of decision nodes in which the decision nodes of the first hierarchical arrangement are associated with a first group of questions relating to the series of sounds, a second level with a second hierarchical arrangement of decision nodes in which the decision nodes of the second hierarchical arrangement are associated with a second group of questions relating to the series of sounds, the second group of questions discriminating at a finer level of granularity within the series of sounds than the first group of questions, and a third level with a third hierarchical arrangement of decision nodes in which the decision nodes of the third hierarchical arrangement are associated with a third group of questions discriminating at a finer level of granularity within the series of sounds than the second group of questions, as recited in amended claim 17.

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With regard to motivation, the Examiner alleges (Office Action, p.4):

> However, Kuhn teaches, building first level of clustering tree and second level of clustering tree as claimed in claims 7-16. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use Kuhn's teaching in the invention of Gillick because Kuhn teaches his invention provide high likelihood of scores and develop speech recognition models that are optimized to minimize confusability (abstract).

Applicants submit that the Examiner's allegation is unrelated to the feature of amended claim 17 recited above.

Furthermore, Applicants submit that the Examiner's allegation with regard to motivation is merely a conclusory statement. Such conclusory statements have been repeatedly help to be insufficient for establishing a *prima facie* case of obviousness.

For at least the foregoing reasons, Applicants submit that claim 17 is patentable over GILLICK in view of KUHN, whether taken alone or in any reasonable combination.

Claims 8-9, 11-13, 15-16, 19, 21, and 23-25 depend from claim 17. Therefore, these claims are patentable over GILLICK and KUHN for at least the reasons set forth above with respect to claim 17. Accordingly, Applicants respectfully request that the rejection of claims 8-9, 11-13, 15-16, 19, 21, and 23-25 under 35 U.S.C. § 103(a) be reconsidered and withdrawn.

Moreover, these claims are patentable over GILLICK and KUHN for reasons of their own. For example, the Examiner did not address the features recited in claims 8-9, 11-13, and 15-16. Thus, a prima facie case of obviousness has not been established with respect to claims 8-9, 11-13, and 15-16. If this rejection is maintained, Applicants respectfully request that the Examiner address these features.

Independent claim 26 recites features similar to, yet possibly of different scope than, features recited above with respect to claim 17. Therefore, this claim is patentable over GILLICK and KUHN for at least reasons similar to the reasons set forth above with respect to claim 17.

Accordingly, Applicants respectfully request that the rejection of claim 26 under 35 U.S.C. § 103(a) be reconsidered and withdrawn.

In view of the foregoing amendments and remarks, Applicants respectfully request the Examiner's reconsideration of this application, and the timely allowance of the pending claims.

If the Examiner does not believe that all pending claims are now in condition for allowance, the Examiner is urged to contact the undersigned to expedite prosecution of this application.

As Applicants' amendments and remarks with respect to the Examiner's rejections are sufficient to overcome the rejections, Applicants' silence as to assertions by the Examiner in the Office Action or certain requirements that may be applicable to such rejections (e.g., whether a reference constitutes prior art, motivation to combine references, assertions as to dependent claims, etc.) is not a concession by Applicants that such assertions are accurate or such requirements have been met, and Applicants reserve the right to analyze and dispute such assertions/requirements in the future.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 18-1945, under Order No. BBNT-P01-016 from which the undersigned is authorized to draw.

Dated: January 14, 2008   Respectfully submitted,

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